29140/BN

CLAIMS

1. Ljungan picornavirus, comprising in the non-coading region of its viral genome a nucleotide sequence corresponding to a cDNA sequence selected from the group consisting of

SEQ ID NO: 1 (Ljungan 87-012)

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AGTCTAGTCT TATCTTGTAT GTGTCCTGCA CTGAACTTGT TTCTGTCTCT      50
GGAGTGCTCT ACACTTCAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC     100
ACAGGAATCT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCACACC     150
CGCTCCACGG TAGAAGATGA TGTGTGTCTT TGCTTGTGAA AAGCTTGTGA     200
AAATCGTGTG TAGGCGTAGC GGCTACTTGA GTGCCAGCGG ATTACCCCTA     250
GTGGTAACAC TAGC
```

and homologous sequences having at least 75% homology to the SEQ ID NO: 1,
and further, causing mammalian disease.

2. Ljungan picornavirus according to claim 1, wherein said homologous sequences have at least 80%, at least 85% or at least 90% homology to the SEQ ID NO: 1.

3. Ljungan picornavirus according to claim 2, wherein said homologous sequence is one of

SEQ ID NO:2 (Ljungan 174F)

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AGTCTAGTTT CATTCTGTGT GTGTTTGGCA CTGAAATTAT TTCTGTCTCT      50
GGGGTGCTTT ACACTTCAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC     100
ACAGGAATNT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCACACC     150
CGCTCCACAG TAGAAGATGA TGTGTGTCTT TGCTTGTGAA AAGCTTGTGA     200
AAATCGTGTG TAGGCGTAGC GGNTACTTGA GTGCCAGCGG ACNACCCCTA     250
GTGGTAACAC TAGC
```

and

SEQ ID NO:3 (Ljungan 145SL).

AGTTTGGTTC TCTCTTGAGT GTGTTTTGTG TTAGCATAAT TTCTGTCTCT 50
AGAGTGCTTT ACACTCTAGT AGGGGCTGTA CCCGGGCGGT CCCACTCTTC 100
ACAGGAATCT GCACAGGTGG CTTTCACCTC TGGACAGTGC ATTCCATACC 150
CGCTCCACAA TAGAAGATGA TGTATATCTT TGTTTGTGAA ATGCTCATGA 200
AACGTGTGTG TAGGCGTAGC GGCTACTTGA ATGCCAGCGG AACCCCCCTA 250
GTGGTAACAC TAGC.

4. Protein comprising an amino acid sequence selected from the group consisting of

SEQ ID NO: 4 (partial structural protein of Ljungan 145SL)

Sub DL

```
Lys Asp Leu Met Glu Ile Ala Arg Met Pro Ser Val Tyr Lys Gly Glu
                5                  10                  15
Arg Thr Glu Pro Gly Gly Thr Asn Gly Tyr Phe Gln Trp Ser His Thr
            20                  25                  30
His Ser Pro Ile Asn Trp Val Phe Asp Gly Gly Ile His Leu Glu Asp
        35                  40                  45
Met Pro Asn Leu Asn Leu Phe Ser Ser Cys Tyr Asn Tyr Trp Arg Gly
    50                  55                  60
Ser Thr Val Leu Lys Leu Thr Val Tyr Ala Ser Thr Phe Asn Lys Gly
65                  70                  75                  80
Arg Leu Arg Met Ala Phe Phe Pro Ile Met Met Gln Gly Thr Gln Arg
                85                  90                  95
Lys Lys His Lys Cys Leu Phe Met Val Cys Asp Ile Gly Leu Asn Asn
            100                 105                 110
Thr Phe Glu Met Thr Ile Pro Tyr Thr Trp Gly Asn Trp Met Arg Pro
        115                 120                 125
Thr Arg Gly Ser Val Ile Gly Trp Leu Arg Ile Asp Val Leu Asn Arg
    130                 135                 140
Leu Thr Tyr Asn Ser Ser Ser Pro Asn Ala Val Asn Cys Ile Leu Gln
145                 150                 155                 160
Val Lys Met Gly Asn Asp Ala Lys Phe Met Val Pro Thr Thr Ser Asn
                165                 170                 175
Ile Val Trp ,
```

and homologous sequences having at least 75% homology to the SEQ ID NO: 4,

and antigenic fragments of the sequences.

5. Antiserum or antibody directed against a structural protein of the virus according to ~~any one of claims 1-3.~~ claim 1

6. Antigen comprising at least a part of a structural protein of the picornavirus according to ~~any one of claims 1-3.~~ claim 1

Sub D2

7. Diagnostic kit comprising at least one member from the group consisting of an antiserum or antibody ~~according to claim 5~~ or an antigen-binding part thereof, an antigen according to claim 6 or an antibody-binding part thereof, one or several probes designed with respect to the genome of the virus ~~according to any one of claims 1-3,~~ ~~and~~ one or several primers designed with respect to the genome of the virus according to any one of claims 1-3.

SUBSTITUTE SHEET (RULE 26)

SUB D3

8. Vaccine having as an immunizing or neutralizing component a member selected from the group consisting of
a) the virus according to any one of claims 1-3,
b) the virus according to any one of claims 1-3 in attenuated form,
c) the virus according to any one of claims 1-3 in killed form,
d) an antigen according to claim 6, including a subunit of the virus according to any one of claims 1-3,
and
e) DNA corresponding to the genomic RNA of the virus according to any one of claims 1-3.

Sub D3

9. Vaccine according to claim 8 which additionally comprises an adjuvant.

10. Ljungan picornavirus according to ~~any one of the claims 1-3,~~ claim 1 optionally in attenuated or killed form, an antiserum or antibody ~~according to claim 5~~ or an antigen ~~according to claim 6~~ for use in a medicament.

11. Use of a Ljungan picornavirus according to ~~any one of the claims 1-3,~~ optionally in attenuated or killed form, an antiserum or antibody ~~according to claim 5~~ or an antigen according to ~~claim 6,~~ in the preparation of a medicament for prophylactic or therapeutic treatment of a disease caused by said virus.

12. Use according to claim 11, wherein the disease caused by said virus is one of Myocarditis, Cardiomyopathia, Guillain Barré Syndrome, and Diabetes Mellitus, Multiple Sclerosis, Chronic Fatigue Syndrome, Myasthenia Gravis, Amyothrophic Lateral Sclerosis, Dermatomyositis, Polymyositis, Spontaneous Abortion, and Sudden Infant Death Syndrome.

13. Method of prophylactic or therapeutic treatment of a disease caused by a virus according to any one of the claims 1-3 in a mammal, including human, which comprises administering to said mammal a prophylactically or therapeutically effective amount of a medicament comprising as an active ingredient a member of the group consisting of

a) the virus according to any one of claims 1-3,

b) the virus according to any one of claims 1-3 in attenuated form,

c) the virus according to any one of claims 1-3 in killed form,

d) an antigen according to claim 6, including a subunit of the virus according to any one of claims 1-3,

and

e) DNA corresponding to the genomic RNA of the virus according to any one of claims 1-3.

14. Method according to claim 13, wherein the disease caused by said virus is one of Myocarditis, Cardiomyopathia, Guillain Barré Syndrome, and Diabetes Mellitus, Multiple Sclerosis, Chronic Fatigue Syndrome, Myasthenia Gravis, Amyothrophic Lateral Sclerosis, Dermatomyositis, Polymyositis, Spontaneous Abortion, and Sudden Infant Death Syndrome.